corresponding to a 5.8 G/cm-A gradient are given in Fig. 4. The actual gradient performance for the discrete winding pattern will differ from that expected from the continuous distribution as calculated from Eq. [7] and displayed in Fig. 2. A graph of the gradient field for a spiral trajectory on and off axis, as calculated for the wire pattern, is given in Fig. 5. In this case, the magnetic field was calculated by approximating the curves with short wire segments and using the standard formulas for finite wire segments. The axial curve very closely fits that obtained via the continuous current distribution. Off the axis, however, the 0.2-G amplitude of the modulation components at the coil center is about 2.5 times larger than that expected from Fig. 2. Since the target method includes the effects of the return current pathways, this is apparently a result of the passage from continuous currents to discrete loops. The extension of the target method presented here can also be used to design efficient gradient coils for sample geometries using horizontal solenoid RF coils, and by adding an additional current layer, the gradient coils can be designed for shielding the exterior field while preserving the interior field gradient linearity.

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Sheet	1	of	1

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U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Document Number - Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-5,989,737	11/23/1999	XIE et al.	
		US-2003/0129447	07/10/2003	MADATHIL et al.	
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		EP-1296386	03/26/2003	MADATHIL et al.		Full
		JP-07-045367	02/14/1995	NOMA et al.		AB
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		NAKANISHI et al., *"Doping Effect and Conduction Mechanism of Organic Semiconductor Evaporated Films"*, TECHNICAL REPORT OF IEICE..., OME2000-108 (2000-09) with Full Translation	
		TSUCHIYA et al., *"Manufacturing Method of Light Emitting Element"*, U.S. Serial No. 10/894,346, Filed: July 20, 2004 (Specification, Claims, Drawings and Filing Receipt)	

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